ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Animal Abstract **Element Code:** AFCJB13150
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Gila robusta* Baird & Girard
COMMON NAME: Roundtail Chub
SYNONYMS: *Gila robusta robusta, Gila robusta grahami, Gila robusta seminuda, Gila robusta jordani, Gila gracilis, Ptychocheilus vorax, Gila nacrea*
FAMILY: Cyprinidae

AUTHOR, PLACE OF PUBLICATION: Baird and Girard 1853a. Proceedings Academy Natural Sciences Philadelphia, 6: 368-369.

TYPE LOCALITY: The specimens originally described by Baird and Girard 1853a were collected by a person with the last name Woodhouse prior to 1853 from the Zuni River in either Arizona or New Mexico, no further data is on record at the Smithsonian National Museum of Natural History in Washington D.C. [but likely Little Colorado R., below Grand Falls, Coconino Co., Arizona].

TYPE SPECIMEN: There were originally three type specimens collected and described of which two have been lost and only a bone from the third remains (Smithsonian National Museum of Natural History Washington D. C., Catalog #USNM-246). Numerous other specimens exist within the Smithsonian collections however, these were not the specimens originally described by Baird and Girard 1853a.

TAXONOMIC UNIQUENESS: There are currently 14 species under the genus *Gila*. This species is represented by four nominal subspecies in the Colorado River System (including Pluvial White River, Nevada; Hubbs and Miller 1948), three of which occur in Arizona waters.

Gila robusta robusta, G.r. grahami, and *G.r. seminuda* have been discussed as the three subspecies making up the "robusta complex." DeMarais et al. (undated) recognize the Virgin River chub as a full species, *Gila seminuda.* Research looking into the subspecies *G.r. robusta* vs. *G.r. graham*i is ongoing.

DESCRIPTION: Deep compressed body; flat head; slender caudal peduncle; large forked caudal fin; angle along anal fin base continues into middle of caudal fin. Terminal mouth extends to front of eye. Dark olive-gray above; silver side. Breeding male may develop red orange on lower half of cheek and paired fin bases. 80-99 lateral scales, usually 9 dorsal rays, 9 anal rays; pharyngeal teeth 2,5-4,2. Individuals may reach 49 cm (19 in.) and frequently attain 25-30cm (10-12 in.). *G.r. grahami* of Arizona and New Mexico generally have 80- 85

lateral scales while *G.r. robusta* in the rest of the U.S. tend to have greater than 85 (Page and Burr 1991).

AIDS TO IDENTIFICATION: Similar species include the humpback chub and bonytail chub, however, these fish have extremely slender caudal peduncles, smaller eyes, angle along anal fin base continuing above caudal fin; large individuals have hump on nape, and a depressed head which is absent on roundtail chub. Other characteristics include a large mouth, with lower lip outlined in black. They are somewhat trout-like in appearance, except they lack an adipose fin.

ILLUSTRATIONS:

B&W photo (Minckley 1973:100)
Color drawing (Page and Burr 1991)
Color photo (Rinne and Minckley 1991:23)
Line drawing (Sublette et al. 1990:126)
B&W photos (Sublette et al. 1990:127)

TOTAL RANGE: Roundtail chubs are known from larger tributaries of the Colorado Basin from Wyoming south to Arizona and New Mexico, as well as, the Rio Yaqui south to Rio Piaxtla, northwestern Mexico (Sublette et al. 1990). In New Mexico, it occurs in the upper Gila River. The Zuni and San Francisco Rivers, New Mexico, represent waterways where *G. robusta* has been extirpated (Sublette et al. 1990).

RANGE WITHIN ARIZONA: Currently occurs in two tributaries of the Little Colorado River (Chevelon and East Clear Creeks); several tributaries of the Bill Williams River basin (Boulder, Burro, Conger, Francis, Kirkland, Sycamore, Trout, and Wilder Creeks); the Salt River and four of its tributaries (Ash Creek, Black River, Cherry Creek and Salome Creek); the Verde River and five of its tributaries (Fossil, Oak, Roundtree Canyon, West Clear, and Wet Beaver Creeks); Aravaipa Creek (a tributary of the San Pedro River); Eagle Creek (a tributary of the Gila River). (USDI, FR 74(128):32356, 7 Jul 2009).

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY:

REPRODUCTION: Roundtail chub breed in spring and early summer (Minckley 1973, Sublette et al. 1990) as spring runoff is subsiding, often in association with submerged cover such as fallen trees and brush. Fertilized eggs are randomly scattered over gravel substrate with no parental care.

FOOD HABITS: Primarily carnivorous. Adults feed on aquatic and terrestrial insects, filamentous algae, and other fishes. Young feed on small insects, crustaceans, and algae in quiet backwaters until they reach 25 to 50 mm (1 to 2 in.) in length.

HABITAT: Roundtail chub occupy cool to warm water, mid-elevation streams and rivers where typical adult microhabitat consists of pools up to 2.0 meters (6.6 feet) deep adjacent to swifter riffles and runs. Cover is usually present and consists of large boulders, tree rootwads, submerged large trees and branches, undercut cliff walls, or deep water. Smaller chubs generally occupy shallower, low velocity water adjacent to overhead bank cover. Sublette et al. (1990), state that roundtails also inhabit large reservoirs.

ELEVATION: Current range includes areas varying in elevation from approximately 1,210 to 7,220 ft. (369 - 2202 m), although more commonly found between 2,000 and 5,000 ft. (610 - 1525 m).

PLANT COMMUNITY: Riparian vegetation which often provides cover for Roundtail chubs generally consists of *Populus fremontii* (Fremont cottonwood), *Baccharis* sp. (seep willow), *Fraxinus velutina* (velvet ash), and *Tamarix* sp. (tamarisk). Aquatic vegetation is generally sparse in their current range, however, roundtail frequently forage on available algae, *Cladophora* sp. and pondweed, *Potamogeton* sp.

POPULATION TRENDS: As with many native fish, reductions in range and numbers are likely the result of habitat loss, as well as competition with, and predation by, non-native fish species. Minckley (1973) adds hope by describing the roundtail as "one fish that appears capable of maintaining its populations fairly well despite the numbers of introduced fishes that now infest Arizona waters", although he state that populations that were doing well in the Salt and Verde Rivers ten years ago, have decreased since. He also feels that the middle breeding populations are being knocked out due to predation by Flathead Catfish (AGFD Native Fish Diversity Review 1995).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS:
C* - Lower Colorado River Basin DPS (USDI, FWS 2009)
[C – LCR Basin DPS (USDI, FWS) 2010-2011]
[SC USDI, FWS 1996]
[C2 USDI, FWS 1991, 1994]

STATE STATUS:
1A (AGFD SWAP 2012)
[WSC, AGFD, WSCA in prep]
[State Threatened AGFD, TNW 1988]

OTHER STATUS:
Not BLM Sensitive (USDI, BLM AZ 2010)
[Bureau of Land Management (USDI, BLM AZ 2008)]
Forest Service Sensitive (USDA, FS Region 3 2007, 2013)
[Forest Service Sensitive (USDA, FS Region 3 1999)]

[Forest Service Sensitive USDA, FS Region 3 1988]
Group 2 (NNDFW, NESL 2000, 2001, 2008)
A, Determined Threatened in Mexico, (NORMA Oficial Mexicana NOM-059-SEMARNAT-2010).
Determined Subject to Special Protection in Mexico (Secretaría De Medio Ambiente, 2000)
[Listed Rare, Secretaría de Desarrollo Social 1994]

MANAGEMENT FACTORS: **Threats:** aquifer pumping; stream diversion; reduction in stream flows; predation by and competition with nonnative fishes. **Management needs:** watershed and stream flow protection; research to determine mechanisms of disappearance; ameliorate effects of deleterious nonnative fishes.

PROTECTIVE MEASURES TAKEN: Currently being considered for T & E listing by the US Fish and Wildlife Service. Arizona Game and Fish and US Forest Service are planning on statewide population surveys for this species and has one survey in progress (as of 8/94) in central Arizona, Roundtail Chub Study, Lower Salt/Verde Rivers (FY 1994-1995).

In 2006 a Statewide Conservation Agreement was completed and signed by nine natural resource management entities in 2007: U.S. Fish and Wildlife Service, Arizona Game and Fish Department, U.S. Bureau of Reclamation, the Hualapai Tribe, Salt River Project, U.S. Bureau of Land Management, Arizona State Land Department, Arizona Department of Water Resources, The Nature Conservancy, and the U.S. Forest Service (AGFD 2006).

SUGGESTED PROJECTS: Monitor populations. Maintain, improve, and augment habitat. Reintroductions to historic range. Further investigation of the "robusta complex."

LAND MANAGEMENT/OWNERSHIP: BIA - Fort Apache, Salt River Pima, and San Carlos Reservations; BLM - Kingman and Safford Field Offices; BOR - Phoenix Area; NPS - Montezuma Castle National Monument; USFS - Apache-Sitgreaves, Coconino, Prescott, and Tonto National Forests; State Land Department; Dead Horse Ranch State Park; AGFD Page Springs Fish Hatchery; TNC - Aravaipa Canyon Preserve; Private.

SOURCES OF FURTHER INFORMATION

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

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ADDITIONAL INFORMATION:

Revised: 1994-07-24 (MFK)
1994-08-01 (MHH)
1994-08-26 (JJW)
1995-01-31 (KLY)
1997-03-05 (SMS)
2001-10-12 (SMS)
2002-12-04 (RHB)

Arizona Game and Fish Department. 20XX **(= year of last revision as indicated at end of abstract)**. X...X **(= taxon of animal or plant)**. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. X pp.